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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,089	12/20/2001	Sami Haapoja	413-010748-US(PAR)	9692

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FAIRFIELD, CT 06824

EXAMINER
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LE, NHAN T

ART UNIT	PAPER NUMBER
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2685

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/027,089

Applicant(s)

HAAPOJA, SAMI

Examiner

Nhan T Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 3, 4, 10, 11, 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Tarusawa et al (US 5,715,525).

As to claims 1, 13, Tarusawa teaches an arrangement for reducing transmitting end losses in a radio apparatus which comprises a receiver and at least one transmitter which, when the apparatus is being used, are occasionally simultaneously in signal transfer state, the arrangement comprising a radio-frequency power amplifier (see fig. 1, Ta, col. 4, lines 34-57), a first antenna filter at the transmitting end (see fig. 1, BF2, col. 4, lines 34-57) and an antenna (see fig. 1, A1, col. 4, lines 34-57), the arrangement further comprising at the transmitting end at least a second antenna filter the stop-band attenuation of which in the operating band of the receiver differs substantially from that of the first antenna filter in the operating band of the receiver (see fig. 1, BF3, col. 4, line 34- col.5, line 28), and switches to form a transmitting end filter of the antenna filters (see fig. 1, SW2, SW4, col. 4, lines 34-57).

As to claim 3, Tarusawa teaches the switches being arranged to form the transmitting end filter using that one of first and second antenna filters which has a lower stop-band attenuation (in this case, switch SW4 connects points point C and B so

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that the filter BF2 using a lower stop-band attenuation (in fig. 1B) is used), when the receiver is in passive state (in this case, switch W3 connects to points C and B).

As to claim 4, Tarusawa further teaches an arrangement according to claim 1, the switches being arranged to include in the transmitting-end filter that one of first and second antenna filters which has a higher stop-band attenuation (in this case, switch SW4 connects points point C and A so that the filter BF3 using a higher stop-band attenuation (in fig. 1B) is used, when the receiver is in receive state (in this case, switch SW3 connects to points C and A).

As to claim 10, Tarusawa teaches an arrangement according claim 1, the transmitter and the receiver being a transmitter and a receiver in one and the same radio system (see col. 1, lines 5-49).

As to claim 11, Tarusawa teaches an arrangement according to claim 1, the radio apparatus being arranged to operate in a first system and in a second system, which both use a same frequency band non-simultaneously, and the power amplifier is common to the transmitters conform to the both systems and the receiver is a receiver conform to the first system, the antenna end of which receiver is shared with the receiver conform to the second system (see col. 4, line 34- col. 5, line 28).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 5, 6, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tarusawa et al (US 5,715,525) in view of Ishizuka et al (US 5,276,914).

As to claim 5, Tarusawa fails to teach an arrangement according to claims 3, the antenna filter of the antenna filters which has a lower stop-band attenuation being a low-pass-type filter and the one with a higher stop-band attenuation being a band-pass filter. Ishizuka teaches the antenna filter of the antenna filters which has a lower stop-band attenuation being a low-pass-type filter and the one with a higher stop-band attenuation being a band-pass filter (see fig. 2, numbers 4, 6, col. 5, line 8- col. 6, line 42).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Ishizuka into the system of Tarusawa in order to filter signals with different frequency characteristics.

As to claim 6, Ishizuka also teaches an arrangement according to claim 5, the transmitting end filter being the band-pass filter when the receiver is in receive state (see fig. 3, number 6, col. 6, line 43- col. 7, line 6).

As to claim 7, Ishizuka also teaches an arrangement according to claim 5, the transmitting end filter being a series connection of the low-pass-type filter and the band-pass filter when the receiver is in receive state (see fig. 3, numbers 4, 6, col. 6, line 43- col. 7, line 6).

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tarusawa et al (US 5,715,525) in view of Wright (US 4,422,047).

As to claim 8, Tarusawa fails to teach an arrangement according to claim 1 at the transmitting end of the radio apparatus being in addition to the first and second antenna

filters at least one band-pass filter, any one of which filters can be connected as the transmitting end filter by means of the switches. Wright teaches an arrangement according to claim 1 at the transmitting end of the radio apparatus being in addition to the first and second antenna filters at least one band-pass filter, any one of which filters can be connected as the transmitting end filter by means of the switches (see fig. 2, BF2, BF3,..BFn, col. 3, line 9- col. 4, line 16). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Wright into the system of Tarusawa in order to filter signals with different frequencies characteristics (as suggested by Wright, see col. 4, lines 1-2).

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tarusawa et al (US 5,715,525) in view of Parmentier (US 6,442,375).

As to claim 9, Tarusawa fails to teach an arrangement according to claim 1, the transmitter being one that operates at a frequency above 1.7 GHz and the receiver is a GPS receiver. Parmentier teaches transmitter being one that operates at a frequency above 1.7 GHz and the receiver is a GPS receiver (see col. 8, line 60 – col. 9, line 12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Parmentier into the system of Tarusawa so that the communication receiver can be located.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tarusawa et al (US 5,715,525) in view of Beming et al (US 6,628,942).

As to claim 12, Tarusawa teaches an arrangement according to claim 11, the first system and the second system. However, Tarusawa fails to teach an arrangement

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according to claim 11, the first system being WCDMA and the second system being GSM. Beming teaches the first system being WCDMA and the second system being GSM (see col. 9, lines 50-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Beming into the system of Tarusawa in order to ensure high communication service in a frequently changing environment.

6. Claims 2, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tarusawa et al (US 5,715,525) in view of Hayes et al (US 6,662,028).

As to claim 2, Tarusawa fails to teach an arrangement according to claim 1, the switches being MEMS switches. Hayes teaches switches being MEMS switches (see col.2, lines 30 – 52). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Hayes into the system of Tarusawa in order to connect electrical and mechanical components in communication system.

As to claim 14, Tarusawa teaches a mobile station comprising a receiver and at least one transmitter which, when the apparatus is being used, are occasionally simultaneously in signal transfer state, a radio frequency power amplifier (see fig. 1, Ta, col. 4, lines 34-57), a first antenna filter at a transmitting end (see fig. 1, BF2, col. 4, lines 34-57), and an antenna (see fig. 1, A1, col. 4, lines 34-57), the mobile station further comprising at the transmitting end at least a second antenna filter the stop-band attenuation of which in the operating band of the receiver differs substantially from that of the first antenna filter in the operating band of the receiver (see fig. 1, BF3, col. 4, line

34- col.5, line 28), and switches arranged to switch that one of the antenna filters which has the lowest stop-band attenuation as the transmitting end filter when the receiver is in passive state, and to switch that one of the antenna filters which has the higher stop-band attenuation as at least part of the transmitting end filter when the receiver is in receive state (see fig. 1, SW2, SW4, col. 4, lines 34-57). Tarusawa fails to teach an arrangement according to claim 1, the switches being MEMS switches. Hayes teaches switches being MEMS switches (see col.2, lines 30 – 52). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Hayes into the system of Tarusawa in order to connect electrical and mechanical components in communication system.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Pesola et al (US 6,014,551) teaches arrangement for transmitting and receiving radio frequency signal at two frequency bands.

Nakamura et al (US 4,980,660) teaches antenna sharing apparatus for switchable transmit/receive filters.

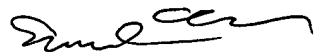
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T Le whose telephone number is 703-305-4538. The examiner can normally be reached on 08:00-05:00 (Mon-Fri).



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 703-305-4385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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